of about 30/minute) yet surrounding tinaja pools had very low populations!

There were several entomological observations presented at the meeting. Susan Whitney recently returned from Puerto Rico and displayed photographs of termite nests in trees. She also discussed the search for termites for a mark-recapture study to be carried out in Newark, and the finding of an excellent colony for study – unfortunately inhabiting one of the University of Delaware's farmhouses! Roger Fuester noted that the flying females of the Asian Gypsy Moth (flight capable female biotype of *Lymantria dispar*) have been collected in the Wilmington N.C. and Long Island, N.Y. areas, probably introduced from pupae on munitions crates from Germany. He noted the concern that this strain readily disperses due to the flying female stage, but that hybridization between the strain established here and the Asian strain is not successful. Jon Gelhaus reported on crane fly collections made in salt marshes along the Delaware Bay in Cumberland Co. New Jersey. He found three crane fly species common, with two of these newly recorded for the state, and one species, *Limonia gibsoni* Alexander, apparently the most common large insect in this habitat in October and its use as food by swallows and possibly other migrant birds. Approximately 20 members and guests were present.

Jon Gelhaus,
Corresponding Secretary

SOCIETY MEETING OF NOVEMBER 16, 1994

THE ECOLOGY OF DIABROTICITE CUCUMBER BEETLE PHARMACOPHAGY (COLEOPTERA: CHRYSOMELIDAE)

Dr. Douglas W. Tallamy
Department of Entomology and Applied Ecology
University of Delaware, Newark, DE

Cucurbitacins, a class of chemicals found mostly in cucurbit plants such as native gourd species, are some of the most bitter compounds known, even at levels of 1 part per billion. These chemicals are toxic to mammals, causing vomiting and even shrinking tumors, and act as feeding deterrents against insects. Yet, for cucumber beetles, cucurbitacins are strong attractants for both adults and larvae, and individuals will feed on pure cucurbitacins even when it decreases their life span and fecundity! The complexities of this attraction and the various hypotheses to explain the origin of it form the core of Doug Tallamy's research, and he discussed the topic during this Philadelphia meeting of the Society.

Pharmacophagy, the acquisition of a chemical for use other than primary metabolism or recognition of host plants, is well illustrated by *Diabrotica* cucumber beetles. These insects comprise some of our most important agricultural pests including grass specialists (particularly pests of corn) like the Western and Northern Corn Rootworms, pests of cucurbits like the Striped Cucumber Beetle and those with broader host ranges like the Banded and Spotted Cucumber Beetles. All are stimulated to feed by the non-volatile cucurbitacins, even at low concentrations of 1 nanogram/milliliter. The beetles most easily pick up the compounds as adults when feeding on cucurbit pollen. They are easily satiated though, and excrete much of it, detoxifying only a small amount in their haemolymph and cuticle to give them a bitter taste. This feeding comes at a cost for some species, either in reduction of life span or fecundity, and also requires the grass specialists to leave their hosts to seek the compounds. For the Spotted Cucumber Beetle, though, there is little measurable cost in fitness by feeding on and using the cucurbitacins.

Dr. Tallamy discussed competing hypotheses explaining the reasons for this attraction in spite of its cost on fitness. The null hypothesis considers the system of no adaptive advantage, sim-

ply a relictual strategy from a coevolutionary process in which the early ancestors of this tribe of beetles were cucurbit specialists and used the compounds to recognize their hosts. An opposing hypothesis considers the defensive nature of the compounds, with their acquisition giving the beetles protection from invertebrate and vertebrate predators. Dr. Tallamy's research looks at many angles, including investigating the genetic basis of the compound's attraction through crossing sensitive and insensitive individuals, testing predator responses, and examining aposomatic and crypsis coloration. His view is that the evidence at present supports the scenario that adults of this tribe of beetles were first exposed to the compounds as pollen feeders, using them for defense, and did not evolve around the larval feeding habits of cucumber beetles.

There were numerous entomological observations presented at the meeting. Due to the continuing mild weather, President Joseph Sheldon noted the co-occurrence of calling by "winter" birds and "summer" katydids in his yard, and Harold White observed several weeks previous while at 3000 ft in the Shenandoah Mountains that walking sticks and tree crickets were still present even though the trees had dropped their leaves. Ken Frank noted that a recent consumer magazine had rated .5% permethrin more effective that DEET against deer ticks and asked for feedback during the next field season. Roger Fuester remarked on newspaper reports that due to successful IPM programs in commercial table grapes some black widow spiders have been reported in bunches of grapes purchased in stores. Barbara Kirschenstein recounted a recent live trapping of a deer mouse with three emerging bot fly larvae in Allegheny National Forest, prompting Curt Sabrosky to note that he had heard of a deer mouse with 7 *Cuterebra* larvae under the mouth, preventing any feeding by the rodent. Sue Frank made mention of a recent newspaper article concerning Daniel Otte and recent memoirs written by George Poinar and Edward O. Wilson. Mildred Morgan exhibited several photos of her Cape May Point garden during the height of the Monarch Butterfly migration around Labor Day. Approximately 25 members and guests were present.

Jon Gelhaus,
Corresponding Secretary

SOCIETY MEETING OF FEBRUARY 22, 1995

ENTOMOLOGICAL TREASURES OF THE ACADEMY

Ms. Carol Spawn, Dr. Jon Gelhaus
Academy of Natural Sciences

The histories of the American Entomological Society and of the Academy of Natural Sciences have been closely linked, commencing with the first meeting of AES in its' new quarters at the Academy in February 1876 (Boyd, 1984, Ent. News 95:131-136). It is only fitting then, that on a February evening, 119 years later, the American Entomological Society and the Friends of the Academy Library met together for a delightful evening examining the entomological history and treasures from the archives and collections of the Academy and AES.

As noted by Carol Spawn, retired Librarian of the Academy, and now the Academy's Archivist, archives constitute the "preservation of non-current records of an organization that are of continuing value." Ms. Spawn selected a variety of archival materials for display, including the bound Society minutes from 1859-1981, the proposal of membership for Lucy Say (Thomas Say's widow), early financial records from as far back as 1859 and the first book of meeting minutes noting, for example, the election of Henry Ulke as a regular member and Baron Osten Sacken as a corresponding member. Beautiful archival items included an album of the only insect paintings created by the 17th century flower painter Alexander Marshall, and P. A. Latreille's personal, two